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BULLETIN
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Studies in the Botany of the southeastern United States.—VI.

BY JOHN K. SMALL.

RIBES CURVATA n. sp.

Perennial, glabrate, bright green, armed with subulate spines, which are about 4–6 mm. long. Stem diffusely branched throughout, 6–8 dm. long, clothed with a loose papery exfoliating bark; branches purplish; branchlets reddish, wiry, like the branches recurved, or conspicuously drooping; leaves suborbicular, 1–2 cm. in diameter, three-lobed, the lobes toothed, the terminal lobe often mucronate; petioles slender, as long as or shorter than the blade of the leaf, usually somewhat villous; flowers small but conspicuous, solitary; peduncles 7–8 mm. long; pedicels twisted, nearly as long as the peduncles, subtended by two 3-lobed ciliate bractlets; calyx-tube papillose; calyx-segments linear or linear-spatulate, 6 mm. long, whitish, reflexed and recurved, strongly nerved toward the middle, the edges hyaline, obtuse, one usually notched at the apex; petals oblong, 1.5 mm. long, white, obtuse, with lateral teeth and one or two nerves; stamens conspicuous, 7 mm. long, erect; filaments villous; anthers red; style somewhat shorter than the filaments, villous; berry globose, 6–8 mm. in diameter, crowned by the persistent stamens.

A low, diffuse shrub, growing on the slopes of Stone Mountain, Georgia; found in flower during the first two weeks of May, and in fruit in the first week of July, 1895.

CUPHEA PROCUMBENS Cav. Ic. 4: 55. *pl.* 380. 1797.

Mr. A. M. Huger has sent me specimens of this showy *Cuphea* from naturalized plants found at Horse Cove, Macon county, North Carolina, altitude about 800 meters. The plant has escaped from gardens.

PERILLA FRUTESCENS (L.) Britton, Mem. Torr. Club, 5: 277. 1894.

This garden plant is establishing itself along the roadsides in the foothills of the mountains of Georgia, notably between Toccoa Falls and Tallulah Falls.

THE NORTH AMERICAN SPECIES OF ILYSANTHES.

Field experience with *Ilysanthes* convinces me that the genus has never been correctly understood. The botanists of the early part of this century seem to have limited the species much better than later authors. Among the later botanists Dr. Chapman* has given us the most satisfactory interpretation of the genus, but he makes *I. gratioloides* a composite. Dr. Gray's treatment in the Synoptical Flora† is inferior in that it contains the composite species just mentioned, and reduces *I. saxicola*, a clearly distinct species, to a variety or state of *I. refracta*. The following seems to me to be the proper division of the genus:

Key to the Species.

Stems creeping, leafy throughout; leaves orbicular or orbicular-ovate, all sessile, rounded at the base.

Leaves entire; upper lip of the corolla much shorter than the lower; capsule slender, much shorter than the calyx. 1. *I. grandiflora*.

Leaves 3-toothed; upper lip of the corolla about equalling the lower; capsule stout, equalling or slightly exceeding the calyx. 2. *I. tridentata*.

Stems erect or ascending, not creeping; leaves more or less elongated, the lower ones usually narrowed at the base.

Pedicels shorter than the leaves; calyx-segments commonly as long as or longer than the capsule. 3. *I. attenuata*.

Pedicels longer than the leaves; calyx-segments shorter than the capsule.

Leaves slightly reduced above; pedicels ascending or spreading.

Upper leaves more or less clasping; capsules much longer than the calyx-segments. 4. *I. gratioloides*.

Upper leaves not at all clasping; capsules slightly longer than the calyx-segments. 5. *I. saxicola*.

Leaves reduced to narrow inconspicuous bracts above; pedicels reflexed.

6. *I. reflexa*.

1. ILYSANTHES GRANDIFLORA (Nutt.) Benth. in DC. Prodr. 10: 418. 1846.

Lindernia grandiflora Nutt. Gen. 2: 43. 1818.

* Fl. S. States, 294.

† Syn. Fl. 2: Pt. 1, 283.

Annual, slender, glabrous, somewhat fleshy, bright green. Stems decumbent and creeping, leafy throughout, 2–20 cm. long, simple or rarely branched; leaves suborbicular, .5–1 cm. in diameter, leathery, entire, usually obtuse, sessile, rounded at the base, more or less clasping; pedicels filiform, 2–4 cm. long, several times longer than the leaves; calyx-segments linear-lanceolate, 3 mm. long, acute, about as long as the capsule; corolla blue, slender, about 1 cm. long, its upper lip much shorter than the lower; capsule slender, narrowly oblong, or narrowly ovoid, 4.5–5 mm. long, acute or acuminate, much longer than the calyx.

Low wet places, eastern Georgia and Florida, March to October. Ascends only a few meters above sea level.

2. *ILYSANTHES TRIDENTATA* n. sp.

Ilysanthes grandiflora S. Wats. Proc. Am. Acad. 22: 442. 1896. Not Benth. 1846.

Annual or biennial, fleshy, slender, glabrous. Branches erect or ascending from a rhizome-like creeping stem, simple or sparingly branched, leafy throughout; leaves orbicular-ovate, 4–6 mm. long, with two low teeth below the apex, rounded at the base, sessile or sometimes slightly clasping, rather densely punctate; pedicels filiform, 1.5–2 cm. long, ascending; calyx minutely glandular-puberulent, its segments linear, 2.5–3 mm. long, obtuse, more than twice shorter than the corolla; corolla stout, 10–12 mm. long, its upper lip very slightly crisped, nearly as long as the cleft and slightly involute lower one; capsule oblong-obovoid, 3–3.5 mm. long, obtuse, equalling or slightly longer than the calyx; seeds oblong or obovoid, angled, with a minute tubercle at the summit.

Rio Blanco, Jalisco, Mexico (Palmer, 46). June to October.

3. *ILYSANTHES ATTENUATA* (Muhl.).

Lindernia attenuata Muhl. Cat. 59. 1813.

Lindernia pyxidaria var. *major* Pursh, Fl. Am. Sept. 419. 1814.

Gratiola attenuata Spreng. Syst. 1: 39. 1825.

Ilysanthes gratioloides curtipedicellata Bush, Bull. Torr. Club, 21: 494. 1894.

Annual, low, fleshy, glabrous, dull-green. Stem erect or ascending, 1–5 dm. long, the branches often numerous, spreading; leaves oblong or ovate, sometimes oblanceolate, or obovate, 1–3 cm. long, thinnish, obtuse, distantly and shallowly serrate, five-nerved, gradually narrowed into a short petiole, or the upper ones nearly sessile; pedicels rather stout, shorter than the leaves; calyx-segments linear-subulate, as long as or longer than the capsules;

corolla 4-11 mm. long; capsule narrowly ovoid, about 4 mm. long; pointed, tipped by the persistent style; seeds oblong, slightly curved, .3-.4 mm. long, yellowish-brown, transversely wrinkled, with usually rounded ends.

Wet places, Ontario to Wisconsin and Missouri, south to the Gulf of Mexico. March to October. Ascends to about 670 meters in the mountains of Virginia.

My attention was first called to this plant by Mr. Bush's Missouri specimens (described as *I. gratioloides curtipedicellata*) and by some I collected in North Carolina. On taking up the subject I found no lack of material, there being twenty-two specimens in the Herbarium of Columbia University variously associated with twenty-five specimens of *I. gratioloides*, some even over the same label. *I. attenuata* can be distinguished from *I. gratioloides* at sight by its stouter and lax habit and short pedicels, while a closer examination will show the calyx-segments of the former as long as or longer than the capsule, whereas those of the latter are always much shorter than the capsule.

4. *ILYSANTHES GRATIOLOIDES* (L.) Benth. in DC. Prodr. 10: 419. 1846.

Capraria gratioloides L. Sp. Pl. Ed. 2, 876. 1763.

Gratiola anagallidea Michx. Fl. Bor. Am. 1: 5. 1803.

Lindernia dilitata anagallidea Muhl. Cat. 59. 1813.

Lindernia pyxidaria Pursh, Fl. Am. Sept. 419. 1814.

Ilysanthes riparia Raf. Ann. Nat. 13. 1820.

Gratiola dilatata Muhl.; Spreng. Syst. 1: 39. 1825.

Ilysanthes attenuata Raf.; Benth. in DC. Prodr. 10: 419. 1846.

Not *L. attenuata* Muhl.

Ilysanthes dilitata Raf.; Benth. in DC. Prodr. 10: 419. 1846.

Annual, low, wiry, glabrous, bright green. Stem erect, or at length decumbent, 1-2 dm. long, simple or diffusely branched from near the base; leaves ovate, or the lower oblong or obovate, somewhat leathery, .6-2 cm. long, obtuse or acute, entire or nearly so, indistinctly nerved, sessile, abruptly narrowed at the base (except some of the lower ones), obtuse or subcordate; pedicels wiry, much longer than the leaves; calyx-segments linear, shorter than the capsule; corolla 5-7 mm. long; capsule ovoid, 4-5 mm. long, rather blunt, tipped by the persistent style; seeds oblong, .2 mm. long, nearly straight, reddish, transversely wrinkled, with usually square ends.

Damp places, New England to Dakota, Nebraska and Texas, south to the Gulf of Mexico, across the southern boundary of the United States and on the Pacific coast; also in Cuba, and said to occur in Mexico. July to September. Ascends to 100 meters both in the Eastern and Pacific States.

Ilysanthes gratioloides has a more extensive geographic distribution than any other of our species. It ranges over the whole United States, except a part of the Rocky Mountain region, although further exploration may show its existence there. It is said to be native in South America and eastern Asia and to be naturalized in western Europe. I have not seen foreign specimens.

5. *ILYSANTHES SAXICOLA* (M. A. Curtis) Chapm. Fl. S. States, 290. 1860.

? *Lindernia monticola* Muhl. Cat. 59. Without description. 1813.

Lindernia saxicola M. A. Curtis; Am. Journ. Sci. 44: 83. 1843.

- Ilysanthes refracta* var. *saxicola* A. Gray, Syn. Fl. N. A. 2: pt. 1, 283. 1878.

Annual or sometimes biennial, glabrous, slender, but somewhat fleshy, bright green. Stems solitary or tufted, erect or assurgent, 2–20 cm. long, simple, or sparingly branched, especially above; leaves fleshy-leathery, 0.5–1.5 cm. long, the basal tufted, spatulate, obtuse, commonly very short-petioled, the upper ones ovate, lanceolate or narrowly elliptic, acutish, sessile, not clasping, slightly narrower than the lower; pedicels wiry, but rather stout, ascending or spreading, 1–1.5 cm. long, 3–4 times longer than the leaves; calyx-segments linear-lanceolate, acutish or obtuse, 2 mm. long, slightly shorter than the capsule; corolla pale blue, variegated, about 1 cm. long, its segments crisped; capsule ovoid, 3 mm. long, rather obtuse; seeds globose-oblong, 0.5 mm. long, pale.

Crevices in damp rocks, Tallulah Falls, Georgia, and on the Hiwassee River, North Carolina. At about 460 meters at Tallulah Falls, and probably at a little greater altitude in North Carolina.

6. *ILYSANTHES REFRACTA* (Ell.) Benth. in DC. Prodr. 10: 419. 1846.

Lindernia refracta Ell. Bot. S. C. and Ga. 1: 579. 1817.

Lindernia monticola Nutt. Add. 1818.

Annual or biennial, glabrous, very slender and wiry, bright green. Stems several together or densely tufted, erect or ascend-

ing, .8–3 dm. long, at length almost filiform, nearly naked, simple or sparingly branched and finally diffuse; leaves mostly basal, spatulate or obovate, 1–3 cm. long, obtuse, entire or undulate, sessile or narrowed into a short petiole; stem leaves reduced to narrow inconspicuous bracts, except a pair at the first or second node; pedicels filiform, at length reflexed, 2–4 cm. long; calyx-segments almost linear, 2–3 mm. long, acutish, twice shorter than the capsule; corolla 1–1.3 cm. long, its segments flat; capsule linear-oblong, about 4 mm. long, acute or acutish; seeds globose-oblong, .5 mm. long, orange, with a small tubercle at the end.

Mostly on wet rocks, North Carolina to Mississippi, south to Florida. Spring to Fall. Ascends to about 365 meters on Little Stone Mountain, Georgia.

GAYLUSSACIA URSINA (M. A. Curtis) T. & G.; A. Gray, Mem. Am. Acad. (II.) 3: 49. 1846.

Flowering specimens of this rare huckleberry were collected by Mr. A. M. Huger, in the mountains about Highlands, Macon county, North Carolina, June, 1895. The altitude was about 710 meters.

SOLIDAGO PURSHII Porter, Bull. Torr. Club, 21: 311. 1894.

“* * * Two remarkable southern stations * * *,” namely McCalls Ferry, Pennsylvania, and Great Falls of the Potomac, are mentioned in the Synoptical Flora as localities for this northern *Solidago*.

In the latter part of August, 1894, I was surprised to find handsome specimens growing in crevices of the rocks at the bottom of the cañon at the falls of the Yadkin river, and at the Narrows some miles above the falls in middle North Carolina. The plants differ from specimens from the northern localities in their greater size and glabrous achenes. There is an abundant growth during the last part of August and the first weeks in September, but at other seasons hardly a vestige of the species can be found. The average height of the plants is about three feet; a few specimens attained a height of four feet. At these localities the species is more plentiful and attains a greater development than it does at the northern stations.

SOLIDAGO GRACILLIMA T. & G. Fl. N. A. 2: 215. 1841.

In September, 1894, I found this species on the summit of Little Stone Mountain, Georgia. Heretofore it has been known only from middle Florida, from collections by Dr. Chapman.

SOLIDAGO RADULA Nutt. Journ. Acad. Phila. 7: 102. 1834.

Found for the first time east of the Alleghenies on August 18th, 1891, by Mr. Heller and myself growing on dry hillsides, just west of the Falls mountains, Stanley county, North Carolina, and observed for several succeeding years. This is an interesting addition to the eastern flora.

HELIANTHUS OCCIDENTALIS Riddell, Suppl. Cat. Ohio Pl. 13. 1836.

This prairie species occurs in a meadow near Logansville, Georgia, about twenty-five miles east of Atlanta. This seems to be the first record of its occurrence east of the Blue Ridge.

Notes on *Potentilla*.—III.

BY P. A. RYDBERG.

With the exception of two species, viz., the white-flowered *P. tridentata* Soland., and the introduced *P. nemoralis* Nestl., all the North American perennial species with ternate leaves can be divided into two natural groups, viz., the *Niveae*, with leaves densely white-tomentose beneath, and the *Frigidae*, without tomentum. Both groups consist of plants generally less than 2 dm. high and often more or less caespitose. The style is terminal or nearly so, filiform but short, in all, except *P. flabellifolia*, not longer than the mature achenes. All the species are arctic or alpine.

To the *Niveae* belong the following:

POTENTILLA VILLOSA Pall.; Pursh, Fl. Am. Sept. 353. 1814.

P. fragiformis villosa Regel & Tiling, Fl. Ajan. 85.

Watson follows Regel & Tiling in placing *P. villosa* as a variety under *P. fragiformis*. The two resemble each other in one important character, viz., the broadly oval obtuse bractlets, which, as well as the calyx, enlarge considerably in fruit. *P. villosa* differs from *P. fragiformis*, however, in the leaves as well as in the flowers; those of the former are much thicker, densely silky above (rarely glabrate), and densely floccose and with prominent veins beneath. The flowers are about one-half larger than those of *fragiformis*. From all the species of the group it differs in the large 2-3 cm. wide